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Global pH Electrodes Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global pH Electrodes market size is expected to reach $ 1500 million by 2032, rising at a market growth of 4.0% CAGR during the forecast period (2026-2032).

In 2025, the global output of pH electrodes is 4.88 million units, with an average price of US$230.6 per unit.

A pH electrode is a device that measures the acidity or alkalinity of a solution by detecting the hydrogen ion (H+) activity in the solution. It works by generating a measurable potential difference across a thin-walled glass membrane that is permeable to hydrogen ions, which is then correlated to the solution's pH value on a scale of 0-14. A pH electrode typically consists of a glass sensing electrode and a stable reference electrode, which together provide the necessary electrochemical signal to the connected pH meter.

The global pH electrode market is supported by stable and widespread demand from industries such as water and wastewater treatment, pharmaceuticals, food and beverages, chemical processing, and laboratories. The market continues to expand as industrial customers pursue tighter process control, increased uptime, and reduced calibration/maintenance costs.

Upstream in the supply chain are material and subassembly suppliers, whose quality determines product lifespan and stability. Critical upstream inputs include the pH-sensitive glass formulation for traditional glass membrane electrodes, reference electrode salts and KCl electrolyte, connection and diaphragm materials (ceramic, polymer, gel), connectors (BNC, DIN), preamplifier electronics, plastic/epoxy/metal housings, and silicon wafers, CMOS/ASIC preamplifiers, and packaging materials for

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ISFET sensors. Therefore, upstream suppliers of precision glass, specialty ceramics, vacuum/cleanroom processing for semiconductor ISFETs, and manufacturers of micro-reference systems significantly influence performance and cost.

Downstream demand is driven by both replacement purchases and initial installations. Municipal and industrial water treatment plants are among the largest recurring buyers, as probes require regular replacement and recalibration. Pharmaceutical and biotech manufacturers require certified and traceable probes and typically source them from qualified suppliers. Food and beverage customers favor hygienic and CIP-compatible probes. Environmental monitoring users prefer rugged, low-power field probes. Contract testing laboratories and educational buyers increase the steady flow of low-value, high-volume products, benefiting distributors and aftermarket channels. On the service side, recalibration, repairs, and sales of reference solutions and replacement connectors constitute a significant downstream revenue source, as many end users prefer service agreements to extend sensor life.

Glass electrode manufacturers have moderate production capacity and capital intensity, while ISFET and advanced probe manufacturers have significantly higher production capacity and capital intensity. Typical small and medium-sized electrode manufacturers can expand their scale by adding membrane forming and assembly lines, while ISFET producers require access to semiconductor processing and cleanroom capacity, prompting them to seek partnerships or foundries. Regional differences are significant: Asia boasts large and flexible commodity electrode production capacity, benefiting from lower labor and material costs; while Europe and North America focus on high-value, certified, and automated production, often aligned with standards for the aerospace, pharmaceutical, and power industries. Suppliers that disclose factory floor space or integrated production lines are generally better positioned to win large supply contracts and offer shorter lead times for high-volume orders.

Profitability varies across the supply chain, depending on product mix. Meter and instrument manufacturers typically have mid-range gross margins for the electronics industry, while electrodes, spare parts, and consumables offer significantly higher margins and generate attractive recurring revenue streams. Gross margins for aftermarket spare parts and consumables average approximately 40% to 60%, making service and consumables the primary profit lever. In contrast, commodity electrodes and low-cost laboratory probes face significant price pressure and shrinking equipment-based margins. Therefore, companies that can bundle calibration, spare parts, and long-term service contracts typically achieve higher lifetime profit margins. Broader electronic equipment benchmarks indicate that instrument gross margins are typically

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concentrated around 20% to 40%, depending on the vertical, while top aftermarket players can significantly increase overall business gross margins through consumables and services.

This report studies the global pH Electrodes production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for pH Electrodes and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of pH Electrodes that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global pH Electrodes total production and demand, 2021-2032, (Units)
Global pH Electrodes total production value, 2021-2032, (USD Million)
Global pH Electrodes production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global pH Electrodes consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: pH Electrodes domestic production, consumption, key domestic manufacturers and share
Global pH Electrodes production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global pH Electrodes production by Type, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global pH Electrodes production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global pH Electrodes market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include BOQU, Sentek, Hamilton, Hanna Instruments, Jenway, Metrohm, Mettler Toledo, XS Instruments, Xylem Analytics, PCE, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World pH Electrodes market

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Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (US$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global pH Electrodes Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global pH Electrodes Market, Segmentation by Type:

Composite Electrode

Split Electrode

Three-in-One Electrode

Global pH Electrodes Market, Segmentation by Sensitive Membrane Material:

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Glass Membrane

Solid Polymer Membrane

ISFET Semiconductor

Metal Oxide

Global pH Electrodes Market, Segmentation by Maintenance Method:

Refillable

Non-refillable Gel Type

Disposable

Global pH Electrodes Market, Segmentation by Application:

Water Quality Monitoring

Chemical Industry

Food and Beverage

Biomedicine

Agriculture

Laboratory

Companies Profiled:

BOQU

Sentek

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Hamilton

Hanna Instruments

Jenway

Metrohm

Mettler Toledo

XS Instruments

Xylem Analytics

PCE

ABB

Iwaki

Sensorex

Key Questions Answered:

1. How big is the global pH Electrodes market?
2. What is the demand of the global pH Electrodes market?
3. What is the year over year growth of the global pH Electrodes market?
4. What is the production and production value of the global pH Electrodes market?
5. Who are the key producers in the global pH Electrodes market?
6. What are the growth factors driving the market demand?

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Contents

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4 UNITED STATES VS CHINA VS REST OF THE WORLD

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List Of Tables

LIST OF TABLES

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List Of Figures

LIST OF FIGURES

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